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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/888,795	06/25/2001	Heng-Yu Jian	4740-059	1757
24112	7590	06/13/2006	EXAMINER	
COATS & BENNETT, PLLC P O BOX 5 RALEIGH, NC 27602			TRINH, TAN H	
			ART UNIT	PAPER NUMBER
			2618	

DATE MAILED: 06/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/888,795	JIAN ET AL.	
	Examiner	Art Unit	
	TAN TRINH	2684	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-56 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-16 and 25-31 is/are allowed.
- 6) ☒ Claim(s) 1-8, 17-24, 32, 33, 42, 43 and 52 is/are rejected.
- 7) ☒ Claim(s) 34-41, 44-51 and 53-56 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1- 8, 17-24, 32-33 and 42-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's the Admitted Prior Art (APR) on fig. 2 and Specification pages 2-8, in view of Beukema (U.S. Patent 5727026).

Regarding claim 1, The Admitted Prior Art (APR) teaches a method of reducing a peak-to-average ratio of an input signal (see fig. 2), comprising the steps of: forming an error signal that corresponds to crests of the input signal (see fig. 2), wherein, when a given crest of the input signal corresponds to more than one sample of the input signal (see fig. 2, Crest detector 220 and specification page 6, lines 23-28), within the given crest; and adjusting the input signal based on the error signal (see fig. 2, the adder/ sub-tractor 235 for adjusting the input signal). But APR fails to teach the error signal corresponding to the given crest contains only one sample having a maximum amplitude.

However, Beukema teaches the error signal corresponding to the given crest contains only one sample having a maximum amplitude (see fig. 1, local maxima 107 is only one sample having a maximum amplitude, col. 2, lines 41-60).

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify above teaching of the APR and the teaching of Beukema on the

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local maximum of each of the peaks, in order to provide the actual local maximum can be found with respect to a sampled peak (see col. 4, lines 27-30).

Regarding claim 17, Admitted Prior Art (APR) teaches a method of reducing a peak-to-average ratio of an input signal (see fig. 2), But APR fails to teach the comprising the step of: decresting crests of the input signal based on only one sample of the input signal for each crest of the input signal, wherein when a given crest contains more than one sample, decresting is based on a sample of the given crest selected for having an amplitude that is larger than other samples of the given crest.

However, Beukema teaches the comprising the step of: decresting crests of the input signal based on only one sample of the input signal for each crest of the input signal (see fig. 1, local maxima 107 is only one sample having a maximum amplitude), wherein when a given crest contains more than one sample (see fig. 1, sample 107, 109 and 111), decresting is based on a sample of the given crest selected for having an amplitude that is larger than other samples of the given crest (see fig. 1, local maxima 107 is only one sample having a maximum amplitude, col. 2, lines 41-60).

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify above teaching of the APR and the teaching of Beukema on the local maximum of each of the peaks, in order to provide the actual local maximum can be found with respect to a sampled peak (see col. 4, lines 27-30).

Regarding claims 2 and 18, The Admitted Prior Art (APR) teaches the step of power-amplifying an outcome of the adjusting step (see fig. 2, the adder/ sub-tractor 235 for adjusting the input signal).

Regarding claims 3 and 19, The Admitted Prior Art (APR) teaches wherein the adjusting step comprises subtracting the error signal corresponding to each crest from the input signal (see fig. 2, the sub-tractor 235 for adjusting the input signal).

Regarding claim 4, The Admitted Prior Art (APR) teaches wherein the error signal is subtracted from a delayed version of the input signal (see fig. 2, the adder/ sub-tractor 235 for subtracted the error signal input signal with the delayed version 240, page 7, lines 25-26).

Regarding claims 5 and 20, Admitted Prior Art (APR) teaches wherein the forming step comprises the step of filtering the error signal to conform with an out-of-band transmission specification (see fig. 2, error filter 230 filtering the error signal).

Regarding claims 6, 21 and 24, Admitted Prior Art (APR) teaches further comprising the steps of repeating the forming and adjusting steps on an outcome of the adjusting step (see fig. 2, page 5, lines 6-26).

Regarding claims 7 and 22, Admitted Prior Art (APR) teaches wherein the forming and adjusting step are implemented at a sampling rate at two times the chip rate (see fig. 2, chip rate

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(Cx2). The APR fail to disclose various values such as four times the chip rate as cited in the claim. However, those skilled in the art would have appreciated that the above differences would not render the claims patentable over the applied references. The reasons are that the above differences would merely depend on how one would like to select particular values regarding the two or four time chip rate to be suitable to the system requirements. Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify the APR applied references as claimed, so that the system of the applied references would be suitable to different system requirements.

Regarding claims 8 and 23. Admitted Prior Art (APR) teaches wherein the adjusting step comprises subtracting the error signal corresponding to each crest from the input signal, wherein the forming step comprises the step of filtering the error signal to conform with an out-of-band transmission specification, and wherein the forming and adjusting steps are implemented at a sampling rate of at least four times the chip rate, and wherein the method further comprises the step of power-amplifying an outcome of the subtracting step (see fig. 2, the sub-tractor 235 for adjusting the input signal, page 7, lines 25-26, and error filter 230 filtering the error signal, and also see the above rejection claims 2-7).

Regarding claim 32 and 42, Admitted Prior Art (APR) teaches a signal amplification system (see fig. 2) comprising: a peak power factor reducer (see fig. 2). But APR fails to teach a first local peak detector.

However, Beukema teaches a first local peak detector (see fig. 1, local maxima col. 2, lines 41- col. 3, line 10).

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify above teaching of the APR and the teaching of Beukema on the local maximum of each of the peaks, in order to provide the actual local maximum can be found with respect to a sampled peak (see col. 4, lines 27-30).

Regarding claims 33 and 43, the combination of the Admitted Prior Art (APR) and Beukema teaches the limitation of claim 33, wherein APR teaches the peak power factor reducer (see fig. 2) further includes a first decrester (see fig. 2, Crest detector 220 and sub-tractor 235) and Beukema teaches the first local peak detector (see Beukema fig. 1) that is coupled with first decrester with APR when they combined that is teaching the limitation of the claim.

3. Claim 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beukema (U.S. Patent 5727026) in view of the Applicant's Admitted Prior Art (APR) on fig. 2 and Specification pages 2-8,

Regarding claim 52, Beukema teaches a method for improving the efficiency of an amplifier (see fig. 1-2), comprising the steps of: detecting a first maximum signal amplitude sample value from a first group of signal amplitude sample values derived from a input signal (see fig. 1, first group of signal amplitude sample values is 107, 109 and 111); generating a first error signal based on the first maximum signal amplitude sample value while eliminating other signal amplitude sample values of the first group of signal amplitude sample values (see fig. 1, local maxima 107 is only one sample having a maximum amplitude, col. 2, lines 41-60). But Beukema fails to teach the de-cresting the first input signal with the first error signal so as to

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reduce overshoot and undershoot of the de-cresting that occurs due to quick variations in several signal amplitude sample values of the first group of signal amplitude sample values.

However, the APR teaches the de-cresting the first input signal with the first error signal so as to reduce overshoot and undershoot of the de-cresting that occurs due to quick variations in several signal amplitude sample values of the first group of signal amplitude sample values (see fig. 2, the de-cresting of fig. 2, the combine of local maximum amplitude sample values of the first error signal to crest detector 220 pass through error filter 230 and sub-tractor 235 with the delay signal 240, for decresting the first input signal with the first error signal so as to reduce overshoot on fig. 2, also see APR page 4, lines 26-page 5, lines 5).

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify above teaching of Beukema and the providing of the teaching of APR on the de-cresting, in order to provide the actual local maximum can be found with respect to a sampled peak (see Beukema col. 4, lines 27-30).

Allowable Subject Matter

4. Claims 9-16 and 25-31 are allowed.
5. Claims 34-41, 44-51 and 53-56 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Reasons for allowance

6. The following is an examiner's statement of reasons for allowance:

Regarding independent claims 9 and 25, the reference of Beukema and the prior art of record fail to disclose, a method of the steps of: forming an error signal that corresponds to crests of the input signal, wherein, when a given crest of the input signal corresponds to more than one sample of the input signal, the error signal is substantially independent of samples that do not correspond to a maximum amplitude of the crest; and adjusting the input signal based on the error signal as cited in claim 9; and

The steps of: detecting short crests of the input signal that correspond to only one sample of the input signal; detecting long crests of the input signal that correspond to more than one sample of the input signal; selecting, for each detected long crest, respectively, a sample of the input signal having a maximum amplitude; decresting each of the short crests, respectively, based on a sample of the input signal that corresponds to the respective short crest; and decresting each of the long crests, respectively, based on the sample selected in the selecting step for the respective long crest as cited in claim 25.

Regarding dependent claims 34, 44 and 53, the reference of Beukema and the prior art of record fail to disclose, The system of claim 33, further including a second decrester coupled to the first decrester as cited in claims 34 and 44. And

Regarding dependent 53, the reference of Beukema and the prior art of record fail to disclose the method of claim 52, further comprising the steps of: detecting a second maximum signal amplitude sample value from a second group of signal amplitude sample values derived from a previously decrested signal; generating a second error signal based on said second maximum signal amplitude sample value while eliminating other signal amplitude sample values

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of said second group of signal amplitude sample values; and decresting said second input signal with said second error signal so as to reduce overshoot and undershoot of said decresting that occurs due to quick variations in several signal amplitude sample values of said second group of signal amplitude sample values as cited in claim 53.

Conclusion

7. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(571) 273-8300, (for Technology Center 2600 only)

*Hand-delivered responses should be brought to the Customer Service Window (now located at the **Randolph Building, 401 Dulany Street, Alexandria, VA 22314**).*

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tan Trinh whose telephone number is (571) 272-7888. The examiner can normally be reached on Monday-Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiners supervisor, Anderson, Matthew D., can be reached at (571) 272-4177.

The fax phone number for the organization where this application or proceeding is assigned is **(571) 273-8300**.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the **Technology Center 2600 Customer Service Office** whose telephone number is **(703) 306-0377**.

9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tan H. Trinh
Division 2618
June 2, 2006



Anderson, Matthew D. (SPE 2618)

